

CLAIMS

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1. A radio communication apparatus comprising:
transmission rate switching means for switching a
transmission rate of a transmission signal based on
5 reception quality information from the other end of
communication; and
transmission means for transmitting a transmission
signal at the switched transmission rate.
2. The radio communication apparatus according to
10 claim 1, wherein the transmission rate switching means
selects a 1/2 transmission rate when the reception
quality measurement result of the reception quality
information is smaller than a first threshold.
3. The radio communication apparatus according to
15 claim 1, wherein the transmission rate switching means
selects a transmission rate at which the reception
quality measurement result becomes greater than the
first threshold when the reception quality measurement
result of the reception quality information is smaller
20 than the first threshold.
4. The radio communication apparatus according to
claim 3, wherein the transmission rate switching means
selects a double transmission rate when the reception
quality measurement result is greater than a second
25 threshold which is greater than said first threshold.
5. The radio communication apparatus according to
claim 1, wherein the transmission rate switching means
selects a transmission rate that meets the reception

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quality of the reception quality measurement result in the reception quality information and at the same time allows the fastest transmission.

6. A radio communication apparatus comprising:

5 reception quality estimation means for estimating the reception quality of the other end of communication based on transmission power control information of said other end of communication;

10 transmission rate switching means for switching the transmission rate of a transmission signal based on this reception quality estimation result; and

transmission means for transmitting the transmission signal at the switched transmission rate.

7. The radio communication apparatus according to
15 claim 6, wherein the reception quality estimation means estimates the reception quality by accumulating the transmission power control information and the transmission rate switching means selects a 1/2 transmission rate when the reception quality estimation
20 result is smaller than a threshold.

8. The radio communication apparatus according to
claim 6, wherein the reception quality estimation means estimates the reception quality by accumulating the transmission power control information and the
25 transmission rate switching means selects a transmission rate at which the reception quality becomes greater than the first threshold when the reception quality estimation result is smaller than the first threshold.

9. The radio communication apparatus according to
claim 8, wherein the reception quality estimation means
estimates the reception quality by accumulating the
transmission power control signal and the transmission
5 rate switching means selects a double transmission rate
when the reception quality estimation result is greater
than a second threshold which is greater than the first
threshold.

10. The radio communication apparatus according to
10 claim 6, wherein the reception quality estimation means
estimates the reception quality by accumulating the
transmission power control signal and the transmission
rate switching means selects a transmission rate that
meets the reception quality of the reception quality
15 estimation result and at the same time allows the fastest
transmission.

11. A radio communication apparatus comprising:
transmission rate switching means for switching a
transmission rate of a transmission signal based on
20 transmission power control information from the other
end of communication; and
transmission means for transmitting the
transmission signal at the switched transmission rate.

12. The radio communication apparatus according to
25 claim 11, wherein the transmission rate switching means
selects a 1/2 transmission rate when the transmission
power in the transmission power control information is
greater than a threshold.

13. The radio communication apparatus according to
claim 11, wherein the transmission rate switching means
selects a transmission rate at which the transmission
power becomes smaller than a first threshold when the
5 transmission power in the transmission power control
information is greater than the first threshold.

14. The radio communication apparatus according to
claim 13, wherein the transmission rate switching means
selects a double transmission rate when the transmission
10 power is smaller than a second threshold which is smaller
than said first threshold.

15. The radio communication apparatus according to
claim 11, wherein the transmission rate switching means
switches the transmission rate so that the transmission
15 power in the transmission power control information is
within a predetermined range.

16. The radio communication apparatus according to
claim 2, wherein the threshold is set according to the
transmission rate in communication.

20 17. The radio communication apparatus according to
claim 2, using a CDMA communication system and setting
a threshold according to the spreading factor.

18. The radio communication apparatus according to
claim 2, using a CDMA communication system and setting
25 a threshold according to the number of multiplexing
codes.

19. A radio communication system comprising:
a first radio communication apparatus comprising

reception quality measuring means for measuring reception quality and transmission means for transmitting information including this reception quality; and

5 a second radio communication apparatus comprising transmission rate switching means for switching a transmission rate based on said reception quality.

20. The radio communication system according to claim 19, wherein the second radio communication 10 apparatus comprises transmission power control means for controlling the transmission power of the first radio communication apparatus based on the reception quality measurement result.

21. The radio communication system according to 15 claim 20, wherein the first radio communication apparatus comprises reception quality estimation means for estimating the reception quality of said other end of communication based on the transmission power control information from the second radio communication 20 apparatus.

22. The radio communication system according to claim 19, wherein the first radio communication apparatus transmits information to the second radio communication apparatus all the time.

25 23. The radio communication system according to claim 19, wherein the first radio communication apparatus transmits information to the second radio communication apparatus only when required.

24. The radio communication system according to
claim 23, wherein the second radio communication
apparatus switches the transmission rate when the
reception quality measured by the first radio
5 communication apparatus deteriorates.

25. The radio communication system according to
claim 23, wherein, when the reception quality of the
second radio communication apparatus deteriorates, the
second radio communication apparatus requests the first
10 radio communication apparatus to send information
including the reception quality.

26. The radio communication system according to
claim 23, wherein the first radio communication
apparatus requests the second radio communication
15 apparatus to resend the information including the
reception quality when the reception signal contains an
error and the second radio communication apparatus, upon
reception of the resend request, requests the first radio
communication apparatus to send the information
20 including the reception quality.

27. The radio communication system according to
claim 19, wherein the transmission rate switching means
switches the transmission rate when the transmission
rate switching means receives a report that the
25 transmission power is excessive from the second radio
communication apparatus.

28. A transmission rate control method comprising
the steps of:

comparing allowable transmission power set in a first layer with average transmission power obtained in a second layer, which is lower than said first layer;
5 indicating a change or no change in a transmission rate in said second layer according to said comparison result; and

changing the transmission rate in a third layer which is higher than said second layer and lower than said first layer according to a change or no change in 10 said transmission rate.

29. The transmission rate control method according to claim 28, wherein said first layer is instructed to lower the transmission rate when said average transmission power is greater than said allowable 15 transmission power.

30. The transmission rate control method according to claim 28, wherein said first layer is instructed to increase the transmission rate when said average transmission power is smaller than said allowable 20 transmission power by a predetermined amount or more.

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